

## Original Article

# Causes of stillbirth

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### Abstract

**Objectives :** To identify various social and practical causes, contributing to the well-known medical causes of stillbirths. **Methods :** Over a period of 4 years (from January 2002 to December 2005), 96 stillbirths occurred. They were studied for knowing the medical as well as social and practical causes behind it. **Results :** Among the total 2728 deliveries during the study period, 96 stillbirths (including three twins) occurred giving a still birth rate of 35.2/1000 births. Of the 93 women having stillbirths, 14 (15.1%) were registered for antenatal care, while 79 (85%) were unregistered. The causes for stillbirth could be identified in 82.3% of cases. Pregnancy induced hypertension, eclampsia, abruptio placenta, birth asphyxia, and preterm labor were common causes contributing to stillbirths. Inadequate antenatal care and suboptimal intrapartum care due to various reasons were the causes behind the preventable medical causes. **Conclusions :** Most of the stillbirths were preventable by improving patient's education and compliance to antenatal care. Adequate antenatal care, timely referral of high-risk cases and prompt tertiary care will help us achieve the goal of reducing stillbirth rate.

**Keywords:** stillbirth, SBR

### Introduction

Perinatal mortality rate (PNMR) in developing countries is 3 to 5 fold higher than that in the developed countries. The current PNMR in India is 35.1 per 1000<sup>1</sup>. Nearly 60% of perinatal deaths are stillbirths of which many are preventable. We analyzed stillbirths over a period of 4 years in our referral rural teaching hospital. This prospective study was carried out with an attempt to identify the medical causes of stillbirths along with the social and practical causes and to suggest possible preventive measures.

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### Methods

A substantial number of cases dealt with at our rural teaching hospital are referred from surrounding villages.

From January 2002 to December 2005, over a period of 4 years, there were 96 stillbirths in 2728 deliveries. They were classified into two groups - antepartum stillbirths (n=56) and intrapartum stillbirths (n=40 cases). To find out probable causes for stillbirth, maternal details like age, parity antenatal care (ANC) visits, medical disorders and presence of any associated obstetric complications were noted. Stillborn babies with birth weight of less than 500 g were excluded from this study. Those women who had attended the antenatal clinics at least thrice before delivery were considered as registered cases.

The mode of delivery, sex and birth weight of fetuses were recorded. The gestational age was assessed from the last menstrual period of the mother and clinical

examination of the baby. All the fetuses were examined for congenital anomalies and each placenta was examined for any abnormality or retroplacental clot. Autopsy was performed whenever consent could be obtained from the parents.

Cases were assigned to the groups of specific medical conditions, only as a result of positive diagnosis. Social and other causes behind the medical causes relating to the women, their families, primary health care providers, clinical practice, and tertiary care were identified. One or more factors were responsible for the suboptimal care in each case.

## Results

During the study period, the total number of deliveries was 2728 and there were 96 stillbirths including three sets of twins. The stillbirth rate (SBR) was 35.2/1000. 58.3% of total stillbirths were antepartum stillbirths (Table 1).

**Table 1. Perinatal mortality rate and stillbirth rate.**

	Number
Total births	2728
Perinatal deaths	139
PNMR	51/1000
Total stillbirths	96
Stillbirth rate	35.2/1000
Antepartum stillbirths	56 (58.3%)
Intrapartum stillbirths	40 (41.7%)

Out of 93 women who had 96 stillbirths, 84.9% were unregistered. Most of the women were in the age groups of 20 to 30 years, though 28 i.e 30.1% women were teenagers. In our study 56.9% women were illiterate and 63.4% belonged to the lowermost socioeconomic class (monthly family income <Rs.2500/-). Most of the babies (73.1%) were delivered by vaginal route (Table 2).

17.7% of antepartum and 8.3% of intrapartum stillbirths were at term. Postmaturity was the cause in three (3.1%) of the cases. All the three had antepartum stillbirth. Sixty-eight (70.8%) stillbirths were preterm (Table 3).

In the antepartum stillbirth group, 49 of the 56 (87.5%)

were unregistered. Most of the stillbirths were due to preventable conditions like abruptio placenta, pregnancy induced hypertension, eclampsia and severe anemia. In the intrapartum stillbirth group, common causes were prematurity, birth asphyxia, congenital malformations, and cord prolapse. In 18 cases (18.8%) no cause could be found (Table 4).

**Table 2. Women characteristics (n=93)**

Details	Number	Percentage
Unregistered cases	79	84.9%
Registered cases	14	15.1%
<20 years	28	30.1%
20-30 years	55	59.1%
>30 years	10	10.7%
Primigravida	45	48.3%
Multigravida	48	51.6%
Hb <10 gm	57	61.2%
Illiterate	53	56.9%
Monthly family income Rs.<2500	59	63.4%
Vaginal delivery	68	73.1%

**Table 3. Gestational age (n=96)**

Gestational age (weeks)	Antepartum stillbirths	Intrapartum stillbirths	Total
<32	24	23	47
33 to 36	12	9	21
37 to 42	17	8	25
>42	3	-	3
Total	56	40	96

Behind the preventable medical causes, the main cause of stillbirth is the suboptimal antenatal and intranatal care. One or more factors were responsible for the suboptimal care. The frequencies of these factors were divided at three different levels. Women themselves were responsible for the suboptimal care in maximum number of stillbirths. The healthcare system was responsible for some cases, mostly at primary health centers, but also at tertiary care at one referral hospital.

**Table 4. Causes of stillbirths (n=96).**

Cause of stillbirths	Antepartum Registered	Intrapartum Unregistered	Total Registered	Unregistered	
Medical disorder					
Pregnancy induced hypertention	2	10	1	1	14 (14.6%)
Eclampsia	-	3	-	1	4 (4.2%)
Severe anemia (Hemoglobin <6g.dL)	-	2	-	-	2 (2.1%)
Antepartum hemorrhage					
Placenta previa	-	-	1	1	2 (2.1%)
Abruptio placenta	1	17	-	3	21 (21.9%)
Prematurity	-	-	-	8	8 (8.4%)
Postmaturity	1	2	-	-	3 (3.1%)
Cord prolapse	-	-	-	5	5 (5.2%)
Congenital malformations	-	-	2	7	9 (9.4%)
Rupture uterus					
Obstructed labor	-	-	-	1	1 (1.1%)
Scar rupture	-	-	-	1	1 (1.1%)
Birth asphyxia	-	-	3	5	8 (8.4%)
Unexplained	3	15	-	-	18 (18.8%)
Total	7	49	7	33	96 (100%)

**Table 5. Reasons for causes behind suboptimal care.**

Reasons	Number
Antenatal care	
• Unregistered women	
Unawareness of antenatal care	34
Inadequate antenatal care / visits	41
Low socioeconomic status	59
Ignorance / Illiteracy	54
Poor support from family members	15
• Registered women	
Failure to report decreased fetal movement*	1
Defaulted follow up	1
Refusal to hospitalize / intervene	4
Primary health care	
Failure to provide adequate antenatal care	44
Failure to recognize/manage high risk cases	15
Late referral of high risk cases	15
Failure to do required investigations	8
Tertiary Care	
Failure to manage high risk cases	3
Delay / error in labor management	3
Inadequate monitoring by junior residents	5
Lack of equipment	1
Error in sonography reporting e.g. biophysical score	1

\*Some stillbirths had multiple reasons.

## Discussion

Stillbirth is a traumatic experience for both the mother and the obstetrician. Despite the advances in fetomaternal medicine the stillbirth rate continues to be high.

The SBR in the present study is 35.2/1000, which is similar to 35.1/1000 reported by Kameshwaran et al<sup>2</sup> but higher than 23.4/1000 reported by Nayak and Dalal<sup>3</sup> and is lower than 42/1000, 43/1000 and 64.1/1000 as reported by Githa et al<sup>4</sup>, Ravikumar et al<sup>5</sup> and Chitra Kumari et al<sup>6</sup> respectively.

In our study, 84.9% women were unregistered. Kameshwaran et al<sup>2</sup> observed five times and Ravikumar et al<sup>5</sup> found four times higher SBR in unregistered women.

The socio-economic status and female literacy influence pregnancy outcome. Women's education is associated with decline in SBR. In our study 56.9% women were illiterate and 63.4% belonged to lowermost socioeconomic class. Chitra Kumari et al<sup>6</sup> reported that 79% women were illiterate and 84.2% from lowermost socioeconomic class.

In the present study abruptio placenta accounted for 21.9% of total stillbirths. Ravikumar et al<sup>5</sup> and Nayak and Dalal<sup>2</sup> reported it to be the cause of stillbirth in 9.8% and 12.9% cases respectively. Pregnancy induced hypertension and eclampsia together accounted for 26.8% (15/56) of antepartum stillbirths. Uchil et al<sup>7</sup> reported that 39.7% of antepartum stillbirths were due to the same cause. No contributory cause could be found in 18.8% cases which is comparable with 16.8% reported by Nayak and Dalal<sup>3</sup>. Congenital malformations were noted in 9.4% of total stillbirths, neural tube defect being the commonest cause. Ravikumar et al<sup>5</sup> found congenital malformations in 10.3%.

Behind the preventable medical causes, the main cause of stillbirth is the suboptimal antenatal and intrapartum care. The causes for this suboptimal care are divided at primary health center level and tertiary health care level. Patients themselves contributed to the suboptimal management of their own pregnancy in 52.9% of the stillbirths as reported by Tham et al<sup>8</sup>. In our study, the unregistered cases contribute to the suboptimal care by non-utilization of antenatal care. Unawareness of existing facilities and of benefits of medical care during pregnancy was the most common cause. Ignorance, poverty, illiteracy and poor support from family,

especially the husband, also contribute to inadequate antenatal care. In registered cases the causes were late registration and failure to realize the significance of absent/decreased fetal movements. Defaulted follow up, and non-compliance of doctor's advice and treatment were the other factors. Two women refused termination of pregnancy even after detecting lethal fetal malformations in early gestation.

Primary health care providers contributed to suboptimal care by failure to recognize high-risk cases, leading to late referrals.

Areas of suboptimal care by the obstetricians included failure to manage high risk cases, delay/error in labor management, and poor counseling. Failure to counsel women with previous cesarean to have next delivery in a hospital resulted in scar rupture due to attempt at home delivery by a 'dai'.

Unavailability of equipments for cardiotocography and errors in sonography reports also contribute. Lastly, perinatal death audits in every tertiary hospital will help us to identify the flaws and weaknesses in our clinical practice.

## Conclusion

A significant proportion of stillbirths is preventable by adequate antenatal care. Female literacy and health education will increase the awareness about antenatal care. The importance of adequate antenatal care, identification of high-risk cases, and timely referral needs to be emphasized among the medical and paramedical personnel at the first point of contact with the pregnant women. Prompt care by well-equipped tertiary centers and periodic departmental audits will help achieve the goal of reducing stillbirths.

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